

**Notice of Allowability**

Application No.

10/648,317

Examiner

John Ruggles

Applicant(s)

KURODA ET AL.

Art Unit

1756

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 11/14/05.
2. ☒ The allowed claim(s) is/are 1 and 3-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

John Ruggles  
Examiner, Art Unit 1756  
571-272-1390

***Response to Amendment***

Applicants' current amendment of claim 1 has invoked the sixth paragraph of 35 U.S.C. 112 by now reciting for the first time the limitation "means for...", which begins in line 10 of claim 1. The patterned near field photomask recited in claim 1 lines 1-10 corresponds to the actual structure of the "means for" performing the desired function when exposure light is polarized in the fashion recited by claim 1 lines 12-13.

All previous objections and rejections are withdrawn in view of (A) the current amendment with accompanying remarks filed by Applicants on 11/14/05 and (B) the examiner's amendment shown below.

**EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicants, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants' Attorney, Jack Cubert on 1/4/05. He was also informed that the "means for..." language in claim 1 was construed as invoking the sixth paragraph of 35 U.S.C. 112 in the manner described above.

The application has been amended as follows:

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IN THE MARKED-UP COPY OF THE SUBSTITUTE SPECIFICATION:

Amend the title as follows: --NEAR-FIELD PHOTOMASK ~~[[,]]~~ AND NEAR-FIELD EXPOSURE APPARATUS ~~USING INCLUDING~~ THE PHOTOMASK ~~[[,]]~~ ~~DOT PATTERN FORMING METHOD USING THE EXPOSURE APPARATUS, AND DEVICE MANUFACTURED USING THE METHOD--~~.

Amend the marked up abstract at lines 3-6 as follows: --openings formed in the light shield film include two or more parallel rows of first slit openings each having a width smaller than 100 nm, and ~~[[a]]~~ two or more parallel rows of second slit openings each having a width smaller than 100 nm, which ~~[[and]]~~ extend~~[[ing]]~~ perpendicularly--.

At page 11 paragraph [0049] line 3, change “exposed by being illuminating with” to --exposed by being ~~illuminating~~ illuminated with--.

At page 20 [0084] lines 3-4, change “the converged ion beam machining method, the X-ray lithography, or the scanned probe microscope (SPM) machining method” to --~~[[the]]~~ a converged ion beam machining method, ~~[[the]]~~ an X-ray lithography method, or ~~[[the]]~~ a scanned probe microscope (SPM) machining method--.

At page 21 [0088] line 2, change “ at least 100 nm, preferably” to -- ~~at least~~ 100 nm~~[[,]]~~ and preferably--.

At page 21 [0089] lines 6-7, change “higher intensity pass” to --higher intensity would pass--.

At page 22 [0090] line 1, change “pattern requires it to be” to --pattern is ~~requires~~ required ~~[[it]]~~ to be--.

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At page 22 [0092] lines 4 and 5, change “ at least 100 nm, preferably” to -- ~~at least~~ 100 nm[[,]] and preferably-- (in line 4) and change “as possible as flat” to -- ~~as possible~~ as flat as possible-- (in line 5).

At page 22 [0093] lines 4 and 5, change “the near-field light is hard to expose the resist 707” to --it is hard for the near-field light ~~is hard~~ to expose the resist 707-- (in line 4) and change “tends to spread in the resist” to --the near-field light tends to spread in the resist-- (in line 5).

At page 23 [0093] line 7 and [0094] lines 2-3 and 4, change “ at least 100 nm, preferably” to -- ~~at least~~ 100 nm[[,]] and preferably--, at all three occurrences.

At page 23 [0097] lines 1 and 3, change “the SAM (Self Assemble Monolayer)” to -- [[the]] a SAM (Self Assemble Assembled Monolayer)-- (in line 1) and change “single molecule layer” to --single ~~molecule~~ molecular layer-- (in line 3).

At page 24 [0103] line 2, change “in each step of near-field exposure process” to --in each step of the near-field exposure process--.

At page 25 [0107] line 2 and again at page 27 [0116] line 2, change “row of first slit opening” (singular) to --row of first slit openings-- (plural), at both occurrences.

At page 30 [0123] line 6, change “two-dimensional” to --a two-dimensional--.

#### IN THE CLAIMS:

At claim 1 lines 6-7, change “the openings formed in said light shield film, which comprise two or more parallel rows of first slit openings” to --the openings formed in said light shield film[[,]] ~~which~~ comprise two or more parallel rows of first slit openings--.

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At claim 1 lines 7-9, change “two or more parallel rows of second slit openings having a width smaller than 100 nm, extending perpendicularly to two or more parallel rows of first slit openings,” to --two or more parallel rows of second slit openings each having a width smaller than 100 nm, which extend[[ing]] perpendicularly to the two or more parallel rows of first slit openings--.

At claim 1 line 12, change “the exposure target in response to each of the openings” to --[[the]] an exposure target in response to each of the first and second slit openings--.

At claim 3 line 2, change “said second slit opening” (singular) to --said second slit openings-- (plural).

At claim 5 line 2, change “plurality of second slit openings” to --plurality of the two or more parallel rows of second slit openings--.

Cancel claims 7-12 (which were all previously withdrawn as non-elected).

#### IN THE DRAWINGS:

Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated, as stated in the brief description thereof at paragraph [0024] of the specification. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the Applicants will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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The following changes to the drawings have been approved by the examiner and agreed upon by Applicants: addition of the legend --Prior Art-- to Figure 10 for the reason set forth above. In order to avoid abandonment of the application, Applicants must make this above agreed upon drawing change.

*Allowable Subject Matter*

Claims 1 and 3-6 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art does not specifically teach all the limitations of claim 1, as currently amended. In particular, the prior art does not specifically teach a near-field photomask comprising a light shield film with patterned openings that comprise two or more parallel rows of first slit openings each having a width smaller than 100 nm and two or more parallel rows of second slit openings each having a width smaller than 100 nm, in which the two or more parallel rows of second slit openings extend perpendicularly to the two or more parallel rows of first slit openings, comprising means for forming a plurality of discrete, spaced apart latent-dot-image formed areas, spaced apart from each other along two perpendicular directions on an exposure target in response to each of the first and second slit openings receiving polarized light having an electric field component parallel to the two or more parallel rows of first slit openings. Therefore, claim 1 is now allowable over the prior art and claims 3-6 are also now allowable over the prior art (due to their dependence on claim 1).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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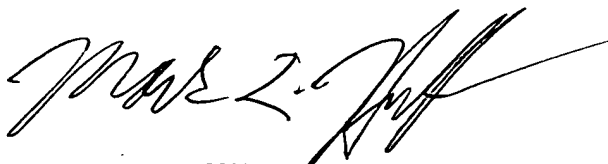
fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Ruggles whose telephone number is 571-272-1390. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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